



COURSE DATA

Data Subject

Code	43879
Name	Introduction to research 1
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
2175 - M.U. en Optometría Avanzada y Ciencias de la Visión 13-V.2	Faculty of Physics	1	First term
3144 - Optometry and Vision Sciences	Doctoral School	0	Annual

Subject-matter

Degree	Subject-matter	Character
2175 - M.U. en Optometría Avanzada y Ciencias de la Visión 13-V.2	15 - Introduction to research 1: research Process - research in vision sciences	Optional
3144 - Optometry and Vision Sciences	1 - Complementos de Formación	Optional

Coordination

Name	Department
ESTEVE TABOADA, JOSE JUAN	280 - Optics and Optometry and Vision Sciences
GONZALEZ TERUEL, AURORA M.	225 - History of Science and Documentation

SUMMARY

This subject will allow to know the theoretical foundations of the scientific method and the research process in the area of optics and optometry, as well as the different types of designs of research studies. In this context, the subject focuses on the role of the scientific method and information throughout the research process, from the definition of the research problem to the dissemination of results. We study how to formulate the research question, the different designs of research studies, how to propose effective search strategies, how to manage the results in personal information management systems, and how to incorporate the ideas of others to our own work in disseminating the results of our research. The main sources of information, both multidisciplinary and specialized in health sciences, are also studied theoretically and practically, allowing a thorough and accurate search of the most relevant information in



the area, as a support throughout the research process.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

No prerequisites are required apart from skills and knowledge provided by university studies.

OUTCOMES

2175 - M.U. en Optometría Avanzada y Ciencias de la Visión 13-V.2

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Know how to work in multidisciplinary teams reproducing real contexts and contributing and coordinating their own knowledge with that of other branches and participants.
- Participate in, lead and coordinate debates and discussions, be able to summarize them and extract the most relevant conclusions accepted by the majority.
- Use different presentation formats (oral, written, slide presentations, boards, etc.) to communicate knowledge, proposals and positions.
- Proyectar sobre problemas concretos sus conocimientos y saber resumir y extraer los argumentos y las conclusiones más relevantes para su resolución.
- Tener capacidad de análisis crítico de la información especializada en los ámbitos propios del máster.
- Tener un compromiso ético y responsabilidad social, tanto en lo que compete a la componente asistencial ligada a la profesión de óptico-optometrista como a lo que respecta a la investigación clínica.



- Tener capacidad de trabajo en equipos multidisciplinares en el área de las ciencias de la salud.
- Conocer la legislación aplicable en el ejercicio profesional, con especial atención a las materias de de igualdad de género entre hombre y mujeres, derechos humanos, solidaridad, protección del medio ambiente y fomento de la cultura de la paz.

LEARNING OUTCOMES

At the end of this course, the student will know the fundamentals of the scientific method and the key aspects for formulating the research question and the main designs of research studies. At the same time, it is expected that the student will be able to make an exhaustive exploitation of the main sources available in order to obtain and manage the most relevant scientific information needed at each stage of the research process.

DESCRIPTION OF CONTENTS

1. The scientific method

The scientific method
The research process
Role of information in the research process
Research ethics

2. Research designs

Different designs in research studies: classification variables
Descriptive studies
Analytical studies
Observational analytical studies
Experimental analytical studies

3. Information sources for scientific work

Primary and secondary sources: the scientific journal and bibliographic databases
Systematic approach to reviewing the scientific literature
Information management in the research process. Bibliographic references managers

4. Bibliographic databases in health sciences

Medline - PubMed - Mesh
EMBASE - Emtree
Other databases: LILACS, IBECs, ...



5. Interdisciplinary bibliographic databases of interest to health sciences

WoS - Web of Science: Science Citation Index, Social Science Citation Index
Journal Citation Reports
SCOPUS
Scimago Journal & Country Rank

6. From the initial proposal to the final draft. The IMRaD protocol

Types of scientific articles. Original article and review article
Anatomy of an original article: Title, abstract, keywords, Introduction, Methodology, Results, Discussion conclusion
Bibliographic references. Incorporating the ideas of others into our work. Plagiarism

WORKLOAD

ACTIVITY	Hours	% To be attended
Seminars	12,00	100
Theory classes	8,00	100
Computer classroom practice	4,00	100
Preparation of evaluation activities	10,00	0
Preparing lectures	29,00	0
Preparation of practical classes and problem	6,00	0
TOTAL	69,00	

TEACHING METHODOLOGY

The development of the course is structured around two types of activities in addition to research activities, preparation of classes and final exercise: the lectures and practical lessons in the computer classroom.

Lectures. Students must acquire basic knowledge on the agenda through self-study and attendance at the lectures. In these classes, the teacher will give an overview of the topic, have an impact on those key concepts for the understanding of it and answer any questions or issues. For individual study and preparation of the subject in depth, they provide students with a basic and additional bibliography, addresses, Internet and support material, as well as instructions and tips for handling information sources.

Practical lessons in the computer classroom. These activities will be developed to complement the knowledge acquired in the theoretical classes through exercises. The activities will revolve around the exhaustive exploitation of the sources of information studied and the management of the results of the searches in the systems of management of the personal information.



In this subject, the use of teaching innovation methodologies is promoted, such as the flipped classroom to enhance the learning of the most important elements of the subject.

EVALUATION

The evaluation of this subject will be continuous, and will consist of:

1) Continuous assessment activities (30%). The students must carry out and deliver the practical activities proposed, through the virtual classroom and on the indicated dates, as well as pass the questionnaires that will be carried out at the end of each of the topics and that will contain both theoretical and practical questions regarding the contents treated in each topic.

The grade obtained in these activities during the first semester will be maintained for the second call of the subject.

The completion and delivery of these practices will be an **essential requirement to be able to take the final exam of the subject.**

2) Final theoretical-practical exam (70%).

The presentation of exercises, questions, activities, reading cards and other exercises submitted for evaluation that have not been carried out directly by the student or that come from the direct copy of other similar works will be considered sufficient reason for failure in the subject, at the margin of the other possible actions of a disciplinary nature that must be carried out.

REFERENCES

Basic

- Cordon García JA, Alonso Arévalo J, Gómez Díaz R, López Lucas J. Las nuevas fuentes de información: información y búsqueda documental en el contexto de la web 2.0. Madrid: Pirámide; 2012.
- Ford N. The essential guide to using the Web for research. Los Angeles: Sage Publications Ltd; 2012.
- Ferran Ferrer N, Pérez-Montoro Gutiérrez M. Búsqueda y recuperación de la información. 1ª en lengua castellana ed. Barcelona: Editorial UOC; 2009.
- Seoane T, Martín-Sánchez E, Martín JLR, Lurueña-Segovia S, Alonso Moreno FJ. Capítulo 3: La investigación a partir de la observación. Estudios descriptivos. Estudios analíticos. SEMERGEN - Medicina de Familia. 2007;33(5):250-6.



Additional

- Abadal E. Acceso abierto a la ciencia. Barcelona: UOC; 2012.
- Day RA. Cómo escribir y publicar trabajos científicos. 5 ed. Washington, D.C: Organización Panamericana de la Salud; 2005.
- Estrada JM. La búsqueda bibliográfica y su aplicación en PubMed-MedLine. SEMERGEN - Medicina de Familia. 2007;33(4):1939.
- Hernández Sampieri R, Fernández Collado C, Baptista Lucio P. Metodología de la investigación. 5a ed. Madrid: McGraw-Hill; 2010.
- Informe APEI sobre acceso abierto | E-LIS. E-prints in Library and Information Science Available at: <http://eprints.rclis.org/handle/10760/12507>. Accessed 5/31/2013, 2011.
- Jiménez Villa J, Argimón Pallás JM, Martín Zurro A. Publicación científica biomédica: cómo escribir y publicar un artículo de investigación. Barcelona: Elsevier Science; 2010.
- Martín J, Seoane T, Martín-Sánchez E, Sainz-Pardo M. Formulación de la pregunta de investigación. SEMERGEN - Medicina de Familia. 2007;33(3):14953.
- Patrias K. Citing medicine: the NLM style guide for authors, editors, and publishers [Internet]. 2nd ed. Wendling DL, technical editor. Bethesda (MD): National Library of Medicine (US); 2007.
- Lazcano-Ponce E, Salazar-Martínez E, Gutiérrez-Castrellón P, Angeles-Llerenas A, Hernández-Garduño A, Viramontes JL. Ensayos clínicos aleatorizados: variantes, métodos de aleatorización, análisis, consideraciones éticas y regulación. Salud Pública de México 2004;46(6):559-84.
- Pita Fernández S. Epidemiología. Conceptos básicos. En: Tratado de Epidemiología Clínica. Madrid; DuPont Pharma, SA; Universidad de Alicante 1995:25-47.